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EXAMINER	
AMINI, JAVID A	

ART UNIT	PAPER NUMBER
2628	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	09/484,123	GLEN, DAVID I. J.	
	Examiner	Art Unit	
	Javid A. Amini	2628	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 October 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *7,8,12,14,16-23 and 28-32* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *1-4,9-11,25-27 and 33* is/are allowed.

6)☒ Claim(s) *12,14,16-18, 20-21, 23 and 28-31* is/are rejected.

7)☒ Claim(s) *7,8,19 and 32* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *10/24/2007*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Response to Arguments

Applicant's arguments with respect to claims **12, 14, 16-18, 20-21, 23, 29-31** have been considered but are moot in view of the new ground(s) of rejection.

Allowable Subject Matter

Claims 1-4, 9-11, 33, 25-27 are allowed.

Claims 19, and 32 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim Objections

Claims 7 and 8 are objected to because of the following informalities: They are dependent to a cancelled claim 6. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 12, 14, 16-18, 20-21, 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over MacInnis et al. US 6,501,480 B1 (hereinafter refers as a MacInnis), and in view of Hanspeter Pfister, Jan Hardenbergh, Jim Knittel, Hugh Lauer, Larry Seiler; The VolumePro real-time ray-casting system ; Proceedings of the 26th annual conference on Computer graphics and interactive techniques SIGGRAPH '99, July 1999, hereinafter Pfister.
Claim 12.

As for claim 12, a video graphics module (MacInnis in fig. 1 illustrates it, and Pfister teaches e.g., in fig. 2 the volume pro PCI card) comprises: a video graphics pipeline module

operable to process at least one image layer (MacInnis in fig. 4 illustrates a graphic pipeline as 80 and a video pipeline as 82 which both are considered as video graphics pipelines. Furthermore, cols. 43-44, lines 63 and 7, respectively, suggests a plurality of video graphics pipeline, and Pfister teaches e.g., in fig. 4 illustrates a ray-casting pipeline);

MacInnis does not explicitly specify a hardware cursor pipeline operable to process a cursor image, however, Pfister teaches a hardware cursor pipeline operable to process a cursor image, e.g., on page 257 left column teaches VolumePro has a 3D cursor feature that inserts a hardware generated, software controlled cursor into the volume data set being rendered; wherein the at least one image layer and the cursor image are operably received from a frame buffer (MacInnis at col. 45 lines 10-11 teaches in an alternate embodiment, two or more of the upper layers may be blended together in parallel, and Pfister teaches e.g., in fig. 11 illustrates a four parallel pipelines, which receive an image layer from volume memory that can be considered it as a buffer memory); and a blending circuit (MacInnis teaches part of unit 58 in fig. 3) operably coupled to the video graphics pipeline and the hardware cursor pipeline operable to process a cursor image (MacInnis in col. 4 line 59 teaches the claimed limitation), wherein the blending circuit is operable to blend, in accordance with an alpha blending convention, the at least one image layer and the cursor image to produce an output image having the cursor image alpha blended in a foremost position with respect to the at least one corresponding image layer (MacInnis teaches e.g., noted in col. 44 line 35).

Thus, it would have been obvious to a person skill in the art at the time of the invention to combine Pfister into MacInnis, because Pfister on page 252 at left column teaches the system achieves up to 10 frames/sec fro 256 volumes, also the system uses lossy data compression,

examiner's interpretations: each frame can be considered as a layered graphical data, and MacInnis in col. 7 lines 46-56 teaches graphics layers and blending with video layers are contended for each pixel blended operation from a SRAM that can be considered as a buffer memory , and this modification would be beneficial to a user to achieve sufficient rendering process and to produce what the claimed features recited.

Claim 13 is cancelled.

Claim 14.

MacInnis teaches wherein the blending module is operable to blend the corresponding image layers using alpha blending and a specified per pixel alpha value or a global alpha value, wherein the alpha blending is performed using one of a plurality of pixel depths, in col. 5, lines 2-5 discloses image pixel format, pixel color type, alpha blend factor, location on the screen, address in memory, depth order on the screen, or other parameters. The system preferably supports a wide variety of pixel formats, including RGB 16, RGB 15, YUV 4:2:2 (ITU-R 601), CLUT2, CLUT4, CLUT8 or others. In addition to each window having its own alpha blend factor, each pixel in the preferred embodiment has its own alpha value. (Definition of alpha blending is: it combines a transparent source color with a translucent destination color.) MacInnis in col. 11 lines 9-20 discloses that often in the creation of graphics displays, the artist or application developer has a need to include rectangular objects on the screen, with the objects having a solid color and a uniform alpha blend factor (alpha value). These regions (or objects) may be rendered with other displayed objects on top of them or beneath them. In conventional graphics devices, such solid color objects are rendered using the number of distinct pixels required to fill the region.

Claim 15 is canceled.

Claim 16 is rejected with similar reasons as set forth in claim 12, above.

Claims 17 and 20,

MacInnis in fig. 2 illustrates mixing modules number 52 (considered as a first mixing module as applicant claimed in the present invention). The video scaler mixing digital, analog and bypass video in, and also outputted to video compositor number 60 (considered as a second mixing module as applicant claimed in the present invention). In fig. 2 a line labeled with "pass through" connecting the three signals from mux (multiplexer) into box 60.

Claim 18.

MacInnis in cols. 4 and 5 lines 62-67; 1-9 discloses that Graphics windows are preferably characterized by window descriptors. Window descriptors are data structures that describe one or more parameters of the graphics window. Window descriptors may include, for example, image pixel format, pixel color type, alpha blend factor, location on the screen, address in memory, depth order on the screen, or other parameters. The system preferably supports a wide variety of pixel formats, including RGB 16, RGB 15, YUV 4:2:2 (ITU-R 601), CLUT2, CLUT4, CLUT8 or others. In addition to each window having its own alpha blend factor, each pixel in the preferred embodiment has its own alpha value. In the preferred embodiment, window descriptors are not used for video windows. Instead, parameters for video windows, such as memory start address and window size are stored in registers associated with the video compositor.

Claim 21

MacInnis in fig. 5 box with dashed line labeled number 58, and also shown clearly in fig. 10 the RGB color and the YUV color.

Claim 22 is cancelled.

Claim 23.

MacInnis in col. 10 lines 4-11 discloses that analog video or MPEG video may be provided to the video compositor as pass through video. Alternatively, either type of video may be captured into memory and provided to the video compositor as a scaled video window. The digitized analog video signals preferably have a pixel sample rate of 13.5 MHz, contain a 16 bit data stream in YUV 4:2:2 format, and include timing signals such as top field and vertical sync signals.

Claims 28-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over MacInnis, Pfister and further in view of Hamburg Mark 6,028,583, hereinafter Hamburg.

Claim 28.

Claim 28 is rejected with similar reason as set forth in claim 12, above,

however, MacInnis and Pfister do not teach the claimed features of blending the first, second and third image layers using alpha blending to produce an output image,

but Hamburg teaches the blending the first, second and third image layers using alpha blending to produce an output image in fig. 9, also see col. 2 lines 58-60, and see col. 1 line 18.

Thus, it would have been obvious to a person skill in the art at the time of the invention to combine Hamburg into Pfister and MacInnis, because Pfister on page 252 at left column teaches the system achieves up to 10 frames/sec fro 256 volumes, also the system uses lossy data compression, examiner's interpretations: each frame can be considered as a layered graphical

data, and MacInnis in col. 7 lines 46-56 teaches graphics layers and blending with video layers are contended for each pixel blended operation from a SRAM that can be considered as a buffer memory , on the other hand Hamburg teaches the ability to change individual image layers opacity of the images, and this modification would be beneficial to a user to achieve sufficient rendering process and to produce what the claimed features recited.

Claim 29.

As for claim 29, MacInnis at col. 14 lines 9-14 teaches "a chroma keying" that is similar to what the claimed invention recited. MacInnis in col. 14 lines 1-6 discloses that the alpha type of 00b indicates that the alpha value is to be selected from chroma keying. Chroma keying determines whether each pixel is opaque or transparent based on the color of the pixel.

Claim 30.

As for claim 30, MacInnis in fig. 28 a flow diagram of a process of blending video and graphics surfaces is illustrated. The graphics display system resets in step 902. In step 904, the video compositor blends the pass through video and the background color with the scaled video window, using the alpha value, which is associated with the scaled video window. The result of this blending operation is then blended with the output of the graphics display pipeline. The graphics output has been pre-blended in the graphics blender in step 904 and filtered in step 906, and blended graphics contain the correct alpha value for multiplication by the video output. The output of the video blend function is multiplied by the video alpha, which is obtained from the graphics pipeline, and the resulting video and graphics pixel data stream are added together to produce the final blended result.

Claim 31.

As for claim 31, MacInnis in fig. 5 illustrates a plurality of multiplexer MUX 162, MUX 168, MUX 176 and MUX 188.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Javid A. Amini whose telephone number is 571-272-7654. The examiner can normally be reached on 8-4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kee Tung can be reached on 571-272-7794. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Javid A Amini
Examiner
Art Unit 2628

J.A.